

इंटरनेट

मानक

### Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

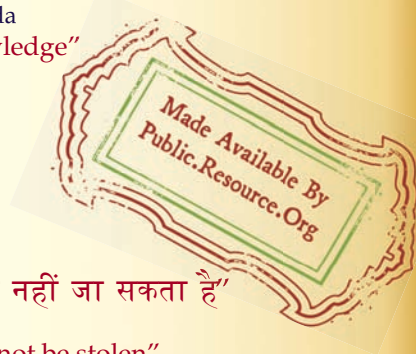
IS 38 (1976): Antimony oxide for paints [CHD 20: Paints, Varnishes and Related Products]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”



BLANK PAGE



**IS : 38 - 1976**  
**(Reaffirmed 2009)**

***Indian Standard***  
**SPECIFICATION FOR**  
**ANTIMONY OXIDE FOR PAINTS**  
**( *First Revision* )**

---

Second Reprint SEPTEMBER 1999

UDC 661.886.22-13:667.6

*Copyright 1976*

**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

**AMENDMENT NO. 1    SEPTEMBER 1987**

**TO**

**IS:38-1976    SPECIFICATION FOR ANTIMONY OXIDE FOR  
PAINTS**

**(First Revision)**

[Page 4, Table 1, Sl No, (iii), col 2]:

- a) Add the symbol '+' after oil absorption.
- b) Add the following foot-note at the end of the table:

'+ This shall, however, be within  $\pm 10$  percent of the approved sample, if any.'

(CDC 50)

---

Reprography Unit, BIS, New Delhi, India

# ***Indian Standard***

## **SPECIFICATION FOR ANTIMONY OXIDE FOR PAINTS**

### **( *First Revision* )**

---

Raw Materials for Paint Industry Sectional Committee, CDC 50

*Chairman*

DR R. J. RATHI

*Representing*

Sudarshan Chemical Industries Ltd, Pune

*Members*

|                                                               |                                                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| SHRI K. L. RATHI ( <i>Alternate to</i><br>Dr R. J. Rathi )    |                                                                                                             |
| SHRI S. K. ASTHANA                                            | Ministry of Defence ( DGI )                                                                                 |
| SHRI S. PANDEY ( <i>Alternate</i> )                           |                                                                                                             |
| SHRI C. J. BHUMKAR                                            | Asian Paints ( India ) Ltd, Bombay                                                                          |
| SHRI G. C. DESAI                                              | Goodlass Nerolac Paints Ltd, Bombay                                                                         |
| SHRI S. H. DESAI                                              | Blundell Eomite Paints Ltd, Bombay                                                                          |
| SHRI R. R. SEQUEIRA ( <i>Alternate</i> )                      |                                                                                                             |
| SHRI G. S. GILL                                               | Indian Paint Association, Calcutta                                                                          |
| DR P. K. BHANDARI ( <i>Alternate</i> )                        |                                                                                                             |
| JOINT DIRECTOR ( M & C )                                      | Railway Board ( Ministry of Railways )                                                                      |
| ASSISTANT RESEARCH OFFICER<br>( CHEM )-I ( <i>Alternate</i> ) |                                                                                                             |
| SHRI K. V. KRISHNAN                                           | Colour-Chem Ltd, Bombay                                                                                     |
| SHRI R. M. TILLU ( <i>Alternate</i> )                         |                                                                                                             |
| SHRI T. K. S. MANI                                            | Addisons Paints & Chemicals Ltd, Madras; and<br>Paints & Allied Products Sectional Committee,<br>CDC 8, ISI |
| SHRI M. B. SATYANARAYANA ( <i>Alternate</i> )                 |                                                                                                             |
| SHRI V. M. NACHANE                                            | Chowgule & Co ( Hind ) Pvt Ltd, Bombay                                                                      |
| DR V. S. VIJAYAN NAYAR                                        | Travancore Titanium Products Ltd, Trivandrum                                                                |
| SHRI B. K. NEHETE                                             | Jenson & Nicholson ( India ) Ltd, Calcutta                                                                  |
| SHRI V. C. PANCHAMIYA                                         | Kamani Metallic Oxides Pvt Ltd, Bombay                                                                      |
| DR B. SANYAL                                                  | Ministry of Defence ( R & D )                                                                               |
| SHRI K. K. CHOUDHRY ( <i>Alternate</i> )                      |                                                                                                             |
| SHRI P. SATYANARAYANAN                                        | The Development Commisioner, Small Scale<br>Industries, New Delhi                                           |
| SHRI K. C. SEAL                                               | National Test House, Calcutta                                                                               |

( Continued on page 2 )

© Copyright 1976

**BUREAU OF INDIAN STANDARDS**

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act

## IS : 38 - 1976

( Continued from page 1 )

| <i>Members</i>                           | <i>Representing</i>                                           |
|------------------------------------------|---------------------------------------------------------------|
| SHRI K. N. R. SHARMA                     | Directorate General of Technical Development,<br>New Delhi    |
| SHRI KULTAR SINGH ( <i>Alternate</i> )   |                                                               |
| SHRI P. K. SHUNGLU                       | The State Trading Corporation of India Ltd, New<br>Delhi      |
| SHRI Y. S. SWAMY                         | The Alkali and Chemical Corporation of India Ltd,<br>Calcutta |
| SHRIS. BHATTACHARYA ( <i>Alternate</i> ) |                                                               |
| SHRI K. S. THAKKAR                       | Hindustan Petroleum Corporation Ltd, Bombay                   |
| DR M. K. UNNI                            | National Chemical Laboratory (CSIR), Pune                     |
| DR A. S. RAO ( <i>Alternate</i> )        |                                                               |
| DR G. M. SAXENA,<br>Director (Chem)      | Director General, ISI ( <i>Ex-officio Member</i> )            |

SHRIR. K. SINGH  
Assistant Director ( Chem ), ISI

### Pigments and Extenders Subcommittee, CDC 50 : 1

|                                            |                                         |
|--------------------------------------------|-----------------------------------------|
| <i>Convener</i>                            |                                         |
| SHRI K. C. SHAL                            | National Test House, Calcutta           |
| <i>Members</i>                             |                                         |
| SHRI S. K. ASTHANA                         | Ministry of Defence ( DGI )             |
| SHRI S. PANDEY ( <i>Alternate</i> )        |                                         |
| SHRI SUKESH BOSE                           | British Paints ( India ) Ltd, Calcutta  |
| SHRI S. H. DESAI                           | Blundell Eomite Paints Ltd, Bombay      |
| SHRI J. N. GHOSAL                          | Sturdia Chemicals Ltd, Bombay           |
| SHRI H. S. VIJAYANATH ( <i>Alternate</i> ) |                                         |
| SHRI M. M. GHOSH                           | Shalimar Paints Ltd, Calcutta           |
| SHRI P. N. KHANNA                          | Asian Paints (India) Ltd, Bombay        |
| SHRI K. V. KRISHNAN                        | Colour-Chem Ltd, Bombay                 |
| SHRI R. M. TILLU ( <i>Alternate</i> )      |                                         |
| SHRI V. C. PANCHAMIYA                      | Kamani Metallic Oxides Pvt Ltd, Bombay  |
| SHRI K. L. RATHI                           | Sudarshan Chemical Industries Ltd, Pune |
| REPRESENTATIVE                             | Goodlass Nerolac Paints Ltd, Bombay     |

### Ad hoc Panel of Bombay Region, CDC 50 : P 1

|                    |                                         |
|--------------------|-----------------------------------------|
| <i>Convener</i>    |                                         |
| SHRI S. H. DESAI   | Blundell Eomite Paints Ltd, Bombay      |
| <i>Members</i>     |                                         |
| SHRI C. J. BHUMKAR | Asian Paints (India) Ltd, Bombay        |
| SHRI G. C. DESAI   | Goodlass Nerolac Paints Ltd, Bombay     |
| SHRI K. L. RATHI   | Sudarshan Chemical Industries Ltd, Pune |
| SHRI R. M. TILLU   | Colour-Chem Ltd, Bombay                 |

***Indian Standard***  
**SPECIFICATION FOR**  
**ANTIMONY OXIDE FOR PAINTS**  
**( *First Revision* )**

**0. FOREWORD**

**0.1** This Indian Standard ( First Revision ) was adopted by the Indian Standards Institution on 20 September 1976, after the draft finalized by the Raw Materials for Paint Industry Sectional Committee had been approved by the Chemical Division Council.

**0.2** This standard was first published in 1950 and was largely based on the interim co-ordinated draft prepared by the Standing Committee on Specifications for Paints and Allied Stores of the General Headquarters, India ( now Army Headquarters ).

**0.3** In this revision which has been based on the recommendations of an ad hoc panel constituted by the concerned Sectional Committee, on iodometric method for estimation of antimony oxide has been prescribed and the earlier volumetric and gravimetric methods have been dropped. Amendment No. 1 of this specification issued in January 1962 has also been incorporated in this revision.

**0.4** This standard contains clause **4.1** which calls for agreement between the purchaser and the supplier.

**0.5** For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960\*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

---

**1. SCOPE**

**1.1** This standard prescribes requirements and the methods of sampling and test for the material commercially known as antimony oxide, intended for use as paint pigment.

---

\*Rules for rounding off numerical values (*revised*)

## 2. TERMINOLOGY

**2.1** For the purpose of this standard, the definitions given in 2 of IS : 33-1976\* and those in IS : 1303-1963† shall apply.

## 3. REQUIREMENTS

**3.1 Description** — The material shall be supplied in the form of dry powder or in such condition that it can be reduced to powder form by crushing, without grinding action, under a palette knife.

**3.2 Composition** — The pigment, dried as described under 7 of IS : 33-1976\*, shall consist of not less than 99 percent of antimony oxide expressed as  $\text{Sb}_2\text{O}_3$ .

**3.2.1** The composition of the material shall be determined as given in Appendix A.

**3.3** The material shall also conform to the requirements prescribed in Table 1.

---

**TABLE 1 REQUIREMENTS FOR ANTIMONY OXIDE FOR PAINTS**

---

| SL No. | CHARACTERISTIC                                       | REQUIREMENT                           | METHOD OF TEST,<br>( REF TO CL NO. IN<br>IS : 33-1976* ) |
|--------|------------------------------------------------------|---------------------------------------|----------------------------------------------------------|
| (1)    | (2)                                                  | (3)                                   | (4)                                                      |
| i)     | Volatile matter, percent by mass, <i>Max</i>         | 0.5                                   | 7                                                        |
| ii)    | Residue on sieve, percent by mass, <i>Max</i>        | 0.1                                   | 8                                                        |
| iii)   | Oil absorption                                       | Not less than 10 and not more than 15 | 9                                                        |
| iv)    | Colour                                               | Close match to the approved sample    | 10                                                       |
| v)     | Reducing power                                       | Not inferior to the approved sample   | 13                                                       |
| vi)    | Matter soluble in water, percent by mass, <i>Max</i> | 0.4                                   | 17                                                       |
| vii)   | Alkalinity, percent by mass, <i>Max</i>              | 0.1                                   | 18                                                       |
| viii)  | Acidity, percent by mass, <i>Max</i>                 | 0.1                                   | 18                                                       |

\*Methods of sampling and test for inorganic pigments and extenders for paints ( *second revision* ).

---

\*Methods of sampling and test for inorganic pigments and extenders for paints ( *second revision* ).

†Glossary of terms relating to paints ( *revised* ).

## 4. PACKING AND MARKING

**4.1 Packing** — Unless otherwise agreed to between the purchaser and the supplier, the material shall be suitably packed in paper bags.

**4.2 Marking** — Each container shall be marked with the following:

- a) Name of the material;
- b) Name of the manufacturer or his recognized trade-mark, if any;
- c) Mass of the material;
- d) Month and year of manufacture; and
- e) Batch number or lot number in code or otherwise.

**4.2.1** The product may also be marked with Standard mark.

**4.2.2** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

## 5. SAMPLING

**5.1** Representative samples of the material shall be drawn and treated as prescribed under 4 of IS : 33-1976\*.

## 6. TEST METHODS

**6.1** Tests shall be conducted as prescribed in IS : 33-1976\* and Appendix A. References to relevant clauses of IS : 33-1976\* are given in col 4 of Table 1.

**6.2 Quality of Reagents** — Unless specified otherwise, pure chemicals and distilled water (see IS : 1070-1960†) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

## 7. CRITERIA FOR CONFORMITY

**7.1** A lot shall be declared as conforming to this standard if the test results on the composite sample satisfy the requirements prescribed under 3.

---

\*Methods of sampling and test for inorganic pigments and extenders for paints (second revision).

†Specification for water, distilled quality (revised).

## APPENDIX A

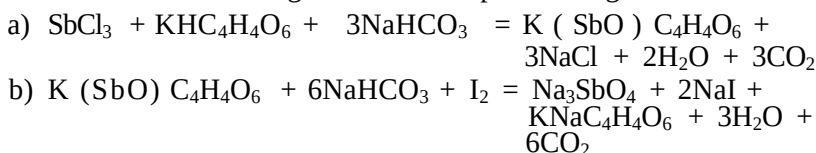
### ( Clauses 3.2.1 and 6.1 )

#### DETERMINATION OF ANTIMONY OXIDE

##### A-0. OUTLINE OF THE METHOD

**A-0.1** A known quantity of the material is dissolved in hydrochloric acid, treated with potassium hydrogen tartrate and sodium bicarbonate or carbonate and titrated iodometrically.

**A-0.2 Reactions** — Following reactions take place during estimation:



##### A-1. REAGENTS

**A-1.1 Concentrated Hydrochloric Acid**

**A-1.2 Iodine Solution** — 0.1 N.

**A-1.3 Potassium Hydrogen Tartrate**

**A-1.4 Sodium Bicarbonate or Sodium Carbonate**

**A-1.5 Starch Indicator** — 0.05 percent solution.

##### A-2. PROCEDURE

**A-2.1** Weigh about 0.1 g or the material and dissolve in about 5 ml of concentrated hydrochloric acid *without boiling* as antimony trichloride is volatile with steam. Then add about 3 to 4 g of potassium hydrogen tartrate and 20 ml of water (more water may be added). Then add about 5 to 6 g of solid sodium carbonate or bicarbonate. (Titration is possible only when pH is more; hence excess of sodium carbonate or bicarbonate is added). Add 15 to 20 ml of water. Then add 1 ml of starch indicator and titrate against 0.1 N iodine solution. At the end point colour changes from colour-leu to blue.

##### A-3. CALCULATION

**A-3.1** Antimony oxide, percent by mass =  $\frac{7.288 \times N \times V}{M}$

where

$N$  = normality of standard iodine solution,

$V$  = volume in ml of standard iodine solution used, and

$M$  = mass in g of the sample taken for the test.

## BUREAU OF INDIAN STANDARDS

### *Headquarters:*

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones: 323 0131, 323 3375, 323 9402 Fax :+91 011 3234062, 3239399, 3239382

E - mail: bis@vsnl.com. Internet: <http://wwwdel.vsnl.net.in/bis.org>

### *Central Laboratory:*

Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010

*Telephone*

77 00 32

### *Regional Offices:*

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002 323 76 17

\*Eastern : 1/14 CIT Scheme VII, V.I.P. Road, Kankurgachi, CALCUTTA 700054 337 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 60 38 43

Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113 235 23 15

†Western : Manakalaya, E9, MIDC, Behind Marol Telephone Exchange,  
Andheri (East), MUMBAI 400093 832 92 95

### *Branch Offices:*

'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001 550 13 48

‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road,  
BANGALORE 560058 839 49 55

Commercial-cum-Office Complex, Opp. Dushera Maidan, E-5 Arera Colony,  
Bittan Market, BHOPAL 462016 72 34 52

62/63, Ganga Nagar, Unit VI, BHUBANESWAR 751001 40 36 27

Kalai Kathir Building, 670 Avinashi Road, COIMBATORE 641018 21 01 41

Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001 28 88 01

Savitri Complex, 116 G.T. Road, GHAZIABAD 201001 71 19 98

53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003 54 11 37

5-6-560, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001 320 10 84

E-52, Chitranjan Marg, C- Scheme, JAIPUR 302001 37 38 79

117/418 B, Sarvodaya Nagar, KANPUR 208005 21 68 76

Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road,  
LUCKNOW 226001 21 89 23

NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010 52 51 71

Patliputra Industrial Estate, PATNA 800013 26 28 08

Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005 32 36 35

'Sahajanand House' 3rd Floor, Bhaktinagar Circle, 80 Feet Road,  
RAJKOT 360002 36 85 86

T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034 32 21 04

---

\*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street,  
CALCUTTA 700072 27 10 85

†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007 309 65 28

‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square,  
BANGALORE 560002 222 39 71